ENVIRONMENTAL ENGINEERING SOLUTIONS

AN INDOOR AIR QUALITY EVALUATION WITH EMPHASIS ON FUNGAL CONTAMINATION

Project: Joseph Paneky Center
13700 Cantrell Road
Little Rock, Arkansas 72212

Client: Caradine Companies Architecture
Mr. Fabian Marks, Associated AIA
P.O. Box 190
Little Rock, Arkansas 72203
(501) 372-4199 Ext. 5
Email: fmarks@caradine.com

Performed By:

EMTEC
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Little Rock, Arkansas 72203

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Date of Inspection: July 31, 2014

Date of Report: August 8, 2014

AN INDOOR AIR QUALITY EVALUATION
WITH EMPHASIS ON FUNGAL CONTAMINATION
FOR CARADINE COMPANIES ARCHITECTURE

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AN INDOOR AIR QUALITY EVALUATION WITH EMPHASIS ON FUNGAL CONTAMINATION FOR CARADINE COMPANIES ARCHITECTURE

1.0 INTRODUCTION AND AUTHORITY

At the request of Mr. Fabian Marks, Associate AIA for the Caradine Companies Architecture, EMTEC was retained to perform an indoor air quality evaluation with emphasis on fungal contamination within the Joseph Pankey Center located at 13700 Cantrell Road in Little Rock, Arkansas. The EMTEC team of Mr. John Hatchett, CIEC, and Mr. Steven Smith, Environmental Consultant, performed the evaluation on July 31, 2014. This evaluation was requested due to fungal contamination being discovered within the vacant building. EMTEC was accompanied during the on-site inspection by Mr. Fabian Marks.

2.0 VISUAL INSPECTION & OBSERVATIONS

The subject building is a single story structure wood framed structure with a pitched asphalt shingled roof. The structure is constructed on a concrete slab with a brick exterior veneer. The structure was constructed in 1999-2000; however the interior of the building was never finished and the building has been vacant since its construction. The building has been boarded up to prevent vandalism. The building does not contain any HV/AC systems, finished electrical wiring, ceilings, etc.

Although the interior of the building has not been finished, it still contains construction materials, such as sheetrock, etc. The interior of the building has also been utilized as a storage area containing several totes and containers of books and miscellaneous items. During the evaluation, Mr. Fabian Marks informed the EMTEC team that the building has sustained some water infiltration over the years, all stemming from the east exterior door in addition to some roof leaks.

EMTEC's visual inspection of the interior of the building revealed evidence of water infiltration, water damage and fungal growth. The water infiltration was evident by the amount of outside dirt on the exposed concrete slab, as well as the water staining on all the sheetrock walls. Fungal growth was present on several of the sheetrock walls, specifically located on the bottom two feet of the sheetrock walls.

EMTEC collected Air-O-Cell and contact samples throughout the interior of the building as well as moisture content readings. These results will be further discussed under Section 4.0.

3.0 SAMPLING PROCEDURE

EMTEC's approach to evaluating the situation consisted of conducting a visual inspection of the subject structure. Then, based on the information received and observed during the inspection, a sampling procedure was designed. The following sample procedures were utilized:

(1) Four (Three Inside and One Outside-Baseline Sample) Total Bioaerosol Particulate samples were collected using the Air-O-Cell cassettes attached to connected plastic tubing and powered by high volume Gast pumps. These samples were collected at the recommended 15-Lpm (Liters Per Minute) flow for a time period of 5 minutes for an inside sample and 5 minutes for the outside sample.

(2) Two contact samples were collected utilizing a transparent Bio-Tape. The Bio-Tape is labeled and applied to the suspected area, then placed back into its case.

(3) Moisture Readings were collected from various areas within the building utilizing an EXTECH Moisture Content Meter.

4.0 SAMPLE RESULTS

4.1 AIR-O-CELL RESULTS

Sample Number	Type of Sample	Location of Sample	Result
JP-01	Air-O-Cell	Outside/Baseline	31,530 counts/cubic meter
JP-02	Air-O-Cell	West End of Building	Mold Present; However, Overloaded With Background Debris
JP-03	Air-O-Cell	Entrance/Front East Corridor	Mold Present; However, Overloaded With Background Debris
JP-04	Air-O-Cell	North Corridor-West End	Mold Present; However, Overloaded With Background Debris

Sample JP-01 (Outside) – 31,530 Counts/cubic meter (Total)
Basidiospores was the main spore contributor (28,300 counts/cubic meter) with Alternaria, Ascospores, Cladosporium, Ganoderma, Unidentifiable Spores, Cercospora, Oidium and Pyricularia making up the rest. This sample is considered to be elevated for an outside sample for the climate conditions at the time of sampling.

Sample JP-02 (West End of Bldg.) – Overloaded (Total)
This sample was overloaded with background debris and could not be accurately analyzed. The background debris was the result of the fine dust/dirt brought into the building by the water infiltration; however, several mold genuses were detected on this sample.

Sample JP-03 (Entrance) – Overloaded (Total)
This sample was overloaded with background debris and could not be accurately analyzed. The background debris was the result of the fine dust/dirt brought into the building by the water infiltration; however, several mold genuses were detected on this sample.

Sample JP-04 (North Corridor-West End of Bldg.) – Overloaded (Total)
This sample was overloaded with background debris and could not be accurately analyzed. The background debris was the result of the fine dust/dirt brought into the building by the water infiltration; however, several mold genuses were detected on this sample.

EMTEC recommends that precautionary measures be taken if any of the following conditions occur: (1) The indoor sample is much higher than the outside/baseline sample or (2) if the indoor sample detects a different mold species than the outside sample at an elevated level or (3) if Stachybotrys is detected at an elevated level.

4.2 CONTACT SAMPLES

Sample Number	Type of Sample	Location of Sample	Result
JP-05C	Contact Sample	Contents in Box/Books	*Rare* - Cladosporium *Rare* - Stachybotrys *Rare* - Unidentifiable *High* – Aspergillus
JP-06C	Contact Sample	North Wall of Event Room	*High* – Stachybotrys *High* - Aspergillus

Mold can be expected to be found inside a residence; however, it is not recommended to be detected at a "High" level.

4.3 MOISTURE READINGS

Type of Sample	Location of Sample	Result
Moisture Content Reading	North Wall-Main Event Room	6%-12% - Normal
Moisture Content Reading	Lobby Walls	6%-12% - Normal
Moisture Content Reading	North Corridor Walls	6%-12% - Normal
Moisture Content Reading	Multi-Purpose Room Walls	6%-12% - Normal
Moisture Content Reading	Conference Room Walls	6%-12% - Normal

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the visual inspection and laboratory results of the subject structure, it is evident that there is a fungal contamination issue associated with the building. As noted above in Section 2.0 of the report, the building has been unfinished and unoccupied since its original construction in 1999-2000. The building has no conditioned air and has sustained several occurrences of water infiltration from the east exterior door, as well as roof leaks. EMTEC's visual inspection revealed several areas of fungal growth on the bottom portions of the sheetrock walls in addition to water staining. The Air-O-Cell samples collected were all overloaded with background debris (fine dirt/dust as a result of the water infiltration); however several mold genuses were detected on the samples. The two contact samples revealed an elevated amount of the Aspergillus and Stachybotrys molds.

It is EMTEC's opinion that occupancy of the building should be either off limits or very limited until the fungal growth can be remediated. In order to remedy the fungal contamination issue within the subject structure, EMTEC recommends the following remediation protocol:

- Ensure that all water infiltration has been properly addressed and corrected: including, but not limited to, any roof leaks and all water infiltration from exterior doors or any other portions of the building.
- Place at a minimum five air scrubbers within the building, all venting to the exterior. Additional access to power will have to be addressed.
- Remove and dispose of all construction materials, miscellaneous contents and dirt on the concrete floor from the building except for the following: 1) Stack of sheetrock in the Main Event Room. Please note, the bottom few sheets will need to be thoroughly inspected for any fungal growth. If fungal growth is present, then those sheets of sheetrock should be disposed. 2) The piano located in the lobby should be sanitized with an antimicrobial solution, covered with poly and stored on site. 3) Any construction equipment.
- Remove and dispose of the bottom four feet of all interior sheetrock walls.
- Remove and dispose the bottom four feet of any wall insulation.
- Thoroughly sanitize all exposed (behind the removed four feet of sheetrock) wall studs and bottom plates, ensuring all fungal growth has been removed. Please note, sanding of these wall studs and bottom plates may be necessary to remove any fungal growth.
- Seal all of the exposed wall studs and bottom plates (behind the removed four feet of sheetrock) with kilz.
- Perform post remediation inspection and possible re-sampling.
- Once clearance inspection has passed, perform "put-back".

6.0 DISCLAIMER

First, it should be explained that mold is always present and occurs naturally in the environment. Second, mold (generally speaking) does not become active or toxic unless the following conditions exist: (1) A source of water or moisture, (2) No direct sun or artificial light, (3) Lack of proper ventilation and (4) An adequate food source. These are the major criteria's necessary for the mold to grow and become toxic.

Immunological reactions include asthma, HP (Hypersensitivity Pneumonitis), and allergic rhinitis. Contact with fungi (Mold) may also lead to dermatitis. It is thought that these conditions are caused by an immune response to fungal agents. The most common symptoms associated with allergic reactions are runny nose, eye irritation, cough, congestion, and aggravation of asthma. HP may occur after repeated exposures to an allergen and can result in permanent lung damage. HP has typically been associated with repeated heavy exposures in agricultural settings, but has also been reported in office settings. Exposure to fungi through renovation work may also lead to initiation or exacerbation of allergic or respiratory symptoms ODTS; (Organic Dust Toxic Syndrome) describes the abrupt onset of fever, flu like symptoms, and respiratory symptoms in hours following a *single, heavy* exposure to dust containing organic material including fungi. It differs from HP in that it is not an immune -mediated disease and does not require repeated exposures to the same causative agents including common species of fungi (e.g., species of Aspergillus and Penicillium). ODTS has been documented in farm workers handling contaminated material, but is also of concern to workers performing renovation work on buildings materials contaminated with fungi. Just some of the health problems with mold have been mentioned, however susceptibility varies with the genetic predisposition (e.g. allergic reactions do not always occur in all individuals), age, state of health, and concurrent exposures (e.g., New York City Department of Health – Environmental & Occupational Disease Epidemiology).

The client is reminded that concentrations and characteristics of mold spores in the air vary significantly based on availability of free moisture, organic matter, temperature, and airflow. The readings identified on the date of the survey represent those conditions that are present at that particular time. Elimination of concentrated mold spores in the air will require addressing of the mold source. Aggressive mold can only be stopped when environmental conditions are improved by the elimination of moisture and organic matter plus increasing exposure to sun light and improving air flow circulation.

Aggressive mold growth can return if healthy environmental conditions are not maintained. Treatment of areas suspected of having mold growth with an antimicrobial cleaner is recommended.

Should any occupant of the building have a depressed immune system, severe respiratory problems, be in a weakened condition, recovering from major surgery, or a young infant with health problems, they should not reside in any areas identified as having abnormal mold concentration for an extended period of time.

Respectfully Submitted,

John Hatchett, CIEC

Steven Smith
Environmental Consultant

APPENDICES

APPENDIX A

MOLD LABORATORY RESULTS

OrderID: 371411699

EMSL ANALYTICAL, INC.

Microbiology Chain of Custody

EMSL Order Number (*Lab Use Only*): 371411699

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON NJ 08077
PHONE: (856) 858-4800
FAX:(856) 858-0648

Company : EMTEC		**EMSL-Bill to:** ☐ Same ☐ Different If Bill to is Different please note in Comments** *Third Party Billing requires written authorization from third party*	
Street: P.O. Box 3703			
City: Little Rock	**State/Province: AR**	**Zip/Postal Code: 72203**	**Country: USA**
Report To (Name):		**Fax #: 501-374-7494**	
Telephone #: 501-374-7492		**E-mail Address: emtec@aristotle.net**	
Project Name/ Number: Pankey Center			
Please Provide Results: ☒ Fax ☒ E-mail	**PO#**	**State Samples Taken:** Arkansas	

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour ☐ 6 Hour ☒ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

**Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide. TATs are subject to methodology requirements*

Non Culturable Air Samples (Spore Traps)

• **M001** Air-O-Cell	• **M173** Allegro M2	• **M004** Allergenco	• **M032** Allergenco-D	• **M172** Versa Trap
• **M049** BioSIS	• **M003** Burkard	• **M043** Cyclex	• **M002** Cyclex-d	
• **M030** Micro 5	• **M174** MoldSnap	• **M176** Relle Smart	• **M130** Via-Cell	

Other Microbiology Test Codes

• **M041** Fungal Direct Examination	• **M014** Endotoxin Analysis	• **M029** *Enterococci*
• **M005** Viable Fungi ID and Count	• **M015** Heterotrophic Plate Count	• **M019** Fecal Coliform
• **M006** Viable Fungi ID and Count (Speciation)	• **M160** Real Time Q-PCR-ERMI 36	• **M133** MRSA Analysis
• **M007** Culturable Fungi	• Panel	• **M026** *Cryptococcus neoformans* Detection
• **M008** Culturable Fungi (Speciation)	• **M018** Total Coliform (Membrane Filtration)	• **M120** *Histoplasma capsulatum* Detection
• **M009** Gram Stain Culturable Bacteria	• **M020** Fecal *Streptococcus* (Membrane Filtration)	• **M033-39** Allergen Testing
• **M010** Bacterial Count and ID – 3 Most Prominent	• **M210-215** *Legionella* Detection	• **M044** Group Allergen (Cat, Dog, Cockroach, Dustmites)
• **M011** Bacterial Count and ID – 5 Most Prominent	• **M026** Recreational Water Screen	• Other See Analytical Price Guide
• **M013** Sewage Contamination in Buildings	• **M027** Mycotoxin Analysis	

Preservation Method (Water):

Name of Sampler: John Hatchett **Signature of Sampler:** John Hatchett

Sample #	Sample Location	Sample Type	Test Code	Volume/Area	Date/Time Collected
JP-01	outside	Air	M001	75 L	7/31-8/1
JP-02	West End of Bldg	↓	↓	↓	↓
JP-03	Entrance / Front East Corridor	↓	↓	↓	↓
JP-04	North Corridor - West End	↓	↓	↓	↓
JP-05C	Contents Box / Book	Contact	M041	N/A	↓
JP-06C	North Wall - Main Room	↓	↓	↓	↓

Client Sample # (s): **Total # of Samples:**

Relinquished (Client): **Date:** 7-31-14 **Time:** 1700

Received (Client): FRM Emsl Fedex **Date:** 8-1-14 **Time:** 920

Comments:

CAM

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0262
http://www.EMSL.com / cinnmicrolab@emsl.com

Order ID:	371411699
Customer ID:	ENGI55
Customer PO:	
Project ID:	

Attn: John Hatchett
EMTEC
P.O. Box 3703
Little Rock, AR 72203

Phone:	(501) 374-7492
Fax:	(501) 374-7494
Collected:	07/31/2014
Received:	08/01/2014
Analyzed:	08/02/2014

Proj: Pankey Center

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	371411699-0001			371411699-0002			371411699-0003		
Client Sample ID:	JP-01			JP-02			JP-03		
Volume (L):	75			75			75		
Sample Location:	Outside			West End of Building			Entrance/Front East Corridor		
Spore Types	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**	**Raw Count**	**Count/m³**	**% of Total**
Alternaria	1*	10*	0	-	-	-	-	-	-
Ascospores	51	2300	7.3	Present	Present	-	Present	Present	-
Aspergillus/Penicillium	-	-	-	Present	Present	-	-	-	-
Basidiospores	636	28300	89.8	Present	Present	-	Present	Present	-
Bipolaris++	-	-	-	-	-	-	-	-	-
Chaetomium	-	-	-	Present	Present	-	Present	Present	-
Cladosporium	12	530	1.7	Present	Present	-	Present	Present	-
Curvularia	-	-	-	-	-	-	Present	Present	-
Epicoccum	-	-	-	Present*	Present*	-	-	-	-
Fusarium	-	-	-	-	-	-	-	-	-
Ganoderma	1	40	0.1	-	-	-	Present	Present	-
Myxomycetes++	-	-	-	Present	Present	-	Present	Present	-
Pithomyces	-	-	-	-	-	-	-	-	-
Rust	-	-	-	-	-	-	-	-	-
Scopulariopsis	-	-	-	-	-	-	-	-	-
Stachybotrys	-	-	-	Present	Present	-	Present*	Present*	-
Torula	-	-	-	-	-	-	-	-	-
Unidentifiable Spores	3	100	0.3	-	-	-	-	-	-
Cercospora	1*	10*	0	-	-	-	Present*	Present*	-
Nigrospora	-	-	-	-	-	-	Present*	Present*	-
Oidium	1	40	0.1	-	-	-	-	-	-
Pyricularia	5	200	0.6	-	-	-	-	-	-
Total Fungi	**711**	**31530**	**100**	-	-	-	-	-	-
Hyphal Fragment	-	-	-	Present	Present	-	Present	Present	-
Insect Fragment	-	-	-	Present	Present	-	Present	Present	-
Pollen	3	100	0.3	-	-	-	-	-	-
Analyt. Sensitivity 600x	-	44	-	-	44	-	-	44	-
Analyt. Sensitivity 300x	-	13*	-	-	13*	-	-	13*	-
Skin Fragments (1-4)	-	1	-	-	2	-	-	2	-
Fibrous Particulate (1-4)	-	1	-	-	1	-	-	1	-
Background (1-5)	-	2	-	-	5	-	-	5	-

Sample Comments: 371411699-0002 Overloaded
Sample Comments: 371411699-0003 Overloaded

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples

Farbod Nekouei, M.S., Laboratory Manager
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification Present = Spores detected on overloaded samples Results are not blank corrected unless otherwise noted The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment "*" Denotes particles found at 300X "-" Denotes not detected Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed EMSL maintains liability limited to cost of analysis This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL EMSL bears no responsibility for sample collection activities or analytical method limitations Interpretation and use of test results are the responsibility of the client Samples received in good condition unless otherwise noted

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC–EMLAP Lab 100194

Initial report from: 08/02/2014 09:33:20

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

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Phone:	(501) 374-7492
Fax:	(501) 374-7494
Collected:	07/31/2014
Received:	08/01/2014
Analyzed:	08/02/2014

Proj: Pankey Center

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods EMSL 05-TP-003, ASTM D7391)

Lab Sample Number:	**371411699-0004**		
Client Sample ID:	**JP-04**		
Volume (L):	**75**		
Sample Location:	**North Corridor-West End**		

Spore Types	Raw Count	Count/m³	% of Total
Alternaria	Present	Present	-
Ascospores	Present	Present	-
Aspergillus/Penicillium	Present	Present	-
Basidiospores	Present	Present	-
Bipolaris++	-	-	-
Chaetomium	Present	Present	-
Cladosporium	Present	Present	-
Curvularia	-	-	-
Epicoccum	-	-	-
Fusarium	-	-	-
Ganoderma	-	-	-
Myxomycetes++	Present	Present	-
Pithomyces	-	-	-
Rust	-	-	-
Scopulariopsis	-	-	-
Stachybotrys	Present	Present	-
Torula	-	-	-
Unidentifiable Spores	-	-	-
Cercospora	Present	Present	-
Nigrospora	-	-	-
Oidium	-	-	-
Pyricularia	-	-	-
Total Fungi	-	-	-
Hyphal Fragment	-	-	-
Insect Fragment	Present	Present	-
Pollen	-	-	-
Analyt. Sensitivity 600x	-	44	-
Analyt. Sensitivity 300x	-	13*	-
Skin Fragments (1-4)	-	2	-
Fibrous Particulate (1-4)	-	1	-
Background (1-5)	-	5	-

Sample Comments: 371411699-0004 Overloaded

Bipolaris++ = Bipolaris/Drechslera/Exserohilum
Myxomycetes++ = Myxomycetes/Periconia/Smut

No discernable field blank was submitted with this group of samples

Farbod Nekouei, M.S., Laboratory Manager
or Other Approved Signatory

High levels of background particulate can obscure spores and other particulates leading to underestimation Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification Present = Spores detected on overloaded samples Results are not blank corrected unless otherwise noted The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment "*" Denotes particles found at 300X "-" Denotes not detected Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed EMSL maintains liability limited to cost of analysis This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL EMSL bears no responsibility for sample collection activities or analytical method limitations Interpretation and use of test results are the responsibility of the client Samples received in good condition unless otherwise noted

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ AIHA-LAP, LLC–EMLAP Lab 100194

Initial report from: 08/02/2014 09:33:20

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Order ID: 371411699
Customer ID: ENGI55
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Project ID:

Attn: John Hatchett
EMTEC
P.O. Box 3703
Little Rock, AR 72203

Phone: (501) 374-7492
Fax: (501) 374-7494
Collected: 07/31/2014
Received: 08/01/2014
Analyzed: 08/02/2014

Proj: Pankey Center

Test Report: Microscopic Examination of Fungal Spores, Fungal Structures, Hyphae, and Other Particulates from Tape Samples (EMSL Method: M041)

Lab Sample Number:	371411699-0005	371411699-0006			
Client Sample ID:	JP-05C	JP-06C			
Sample Location:	Contents Box/Book	North Wall-Main Room			
Spore Types	Category	Category			
Agrocybe/Coprinus	-	-			
Alternaria	-	-			
Ascospores	-	-			
Aspergillus/Penicillium	-	-			
Basidiospores	-	-			
Bipolaris++	-	-			
Chaetomium	-	-			
Cladosporium	Rare	-			
Curvularia	-	-			
Epicoccum	-	-			
Fusarium	-	-			
Ganoderma	-	-			
Myxomycetes++	-	-			
Paecilomyces	-	-			
Rust	-	-			
Scopulariopsis	-	-			
Stachybotrys	Rare	*High*			
Torula	-	-			
Ulocladium	-	-			
Unidentifiable Spores	Rare	-			
Zygomycetes	-	-			
Aspergillus	*High*	*High*			
Fibrous Particulate	-	-			
Hyphal Fragment	-	-			
Insect Fragment	Rare	-			
Pollen	Rare	-			

Category: Count/per area analyzed
Rare: 1 to 10 Low: 11 to 100 Medium: 101 to 1000 High: >1000

Bipolaris++ = Bipolaris/Dreschlera/Exserohilum Myxomycetes++ = Myxomycetes/Periconia/Smut
* = Sample contains fruiting structures and/or hyphae associated with the spores

No discernable field blank was submitted with this group of samples.

Farbod Nekouei, M.S., Laboratory Manager
or Other Approved Signatory

Initial report from: 08/02/2014 09:33:20

For Information on the fungi listed in this report please visit the Resources section at www.emsl.com

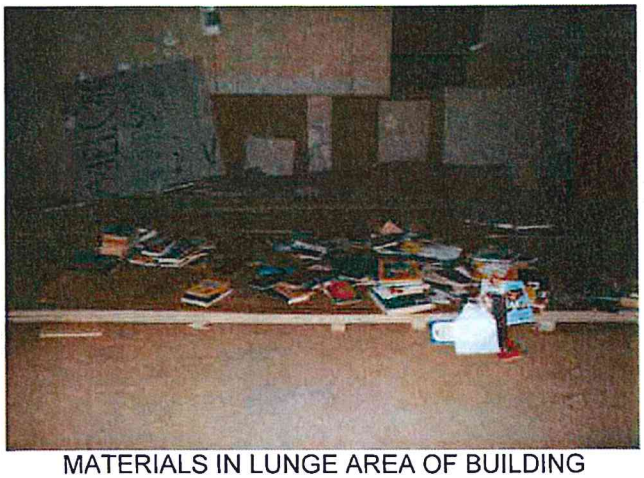
APPENDIX B

PHOTOGRAPHS

JOSEPH PANEKY CENTER
LITTLE ROCK, ARKANSAS

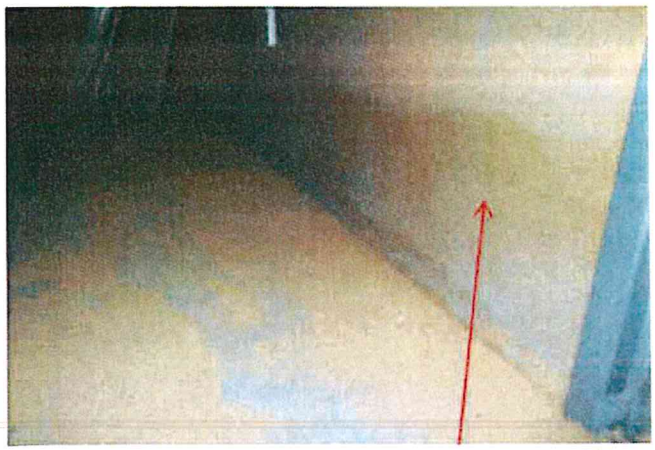
FUNGAL GROWTH ON NORTH WALL OF SPECIAL EVENT ROOM

FUNGAL GROWTH ON NORTH WALL IN SPECIAL EVENT ROOM-

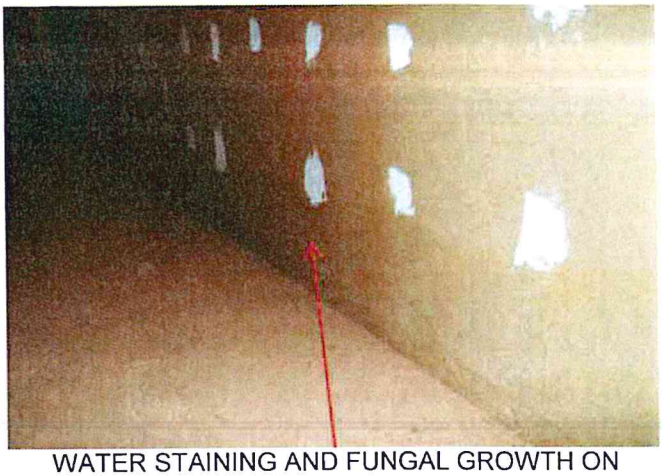


MATERIALS IN LUNGE AREA OF BUILDING

BUILDING MATERIALS IN SPECIAL EVENT ROOM



WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL



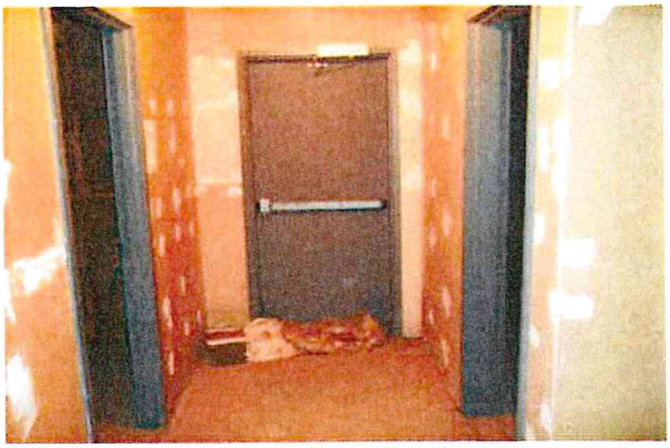
WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

JOSEPH PANEKY CENTER
LITTLE ROCK, ARKANSAS

WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

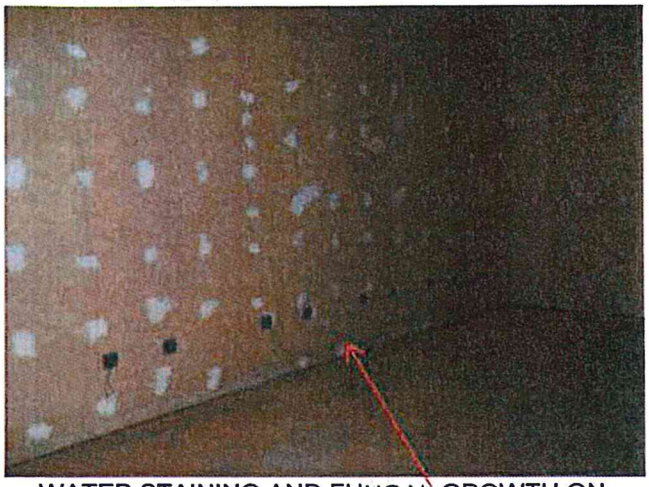


EAST EXTERIOR DOOR-SOURCE OF WATER INFILTRATION

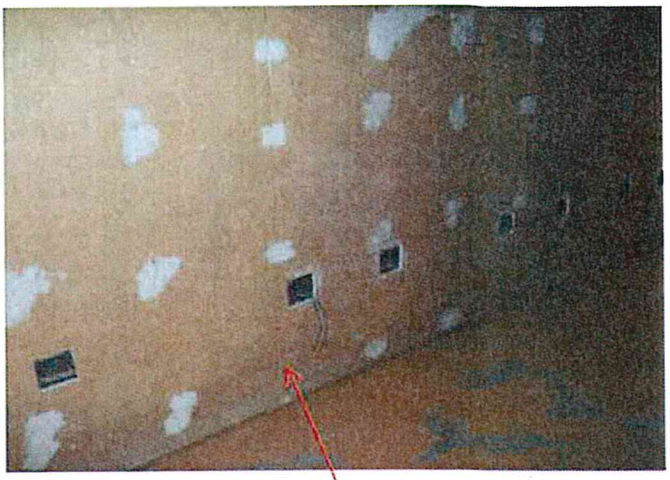
WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL

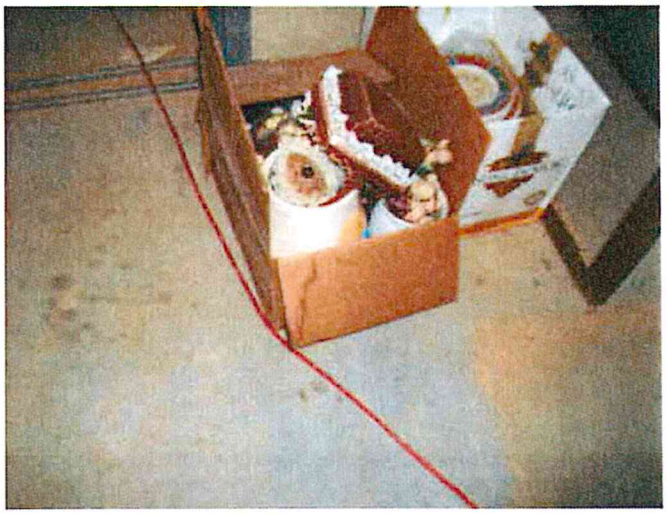
JOSEPH PANEKY CENTER
LITTLE ROCK, ARKANSAS



WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL



WATER STAINING AND FUNGAL GROWTH ON SHEETROCK WALL



BOXES/ITEMS IN SPECIAL EVENT ROOM

BOXES/ITEMS IN SPECIAL EVENT ROOM-NOTE WATER DAMAGE ON FUNGAL GROWTH

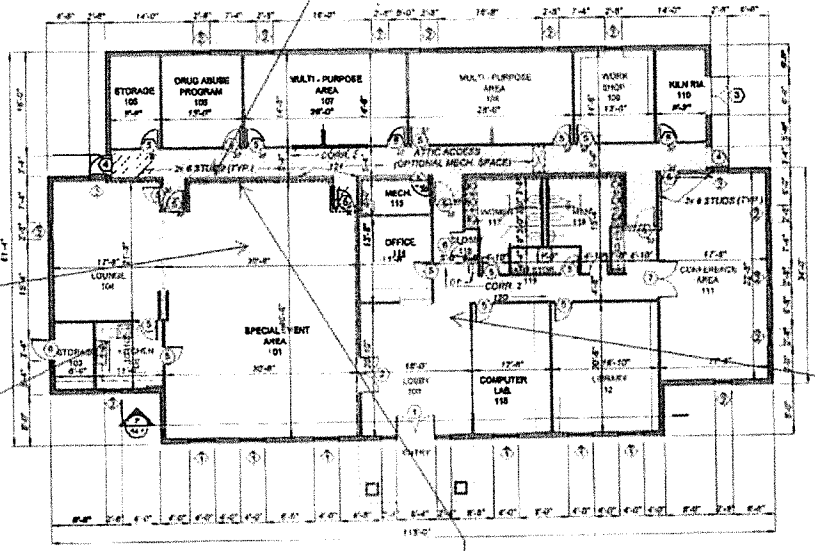
CONSTRUCTION MATERIALS ON GROUND-NOTE WATER DAMAGE AND FUNGAL GROWTH

APPENDIX C

FLOOR PLANS

JP-01 (Outside Sample)
Air-O-Cell Sample
31,530 counts/cubic meter

JP-04
Air-O-Cell Sample
Overloaded With Background Debris



FLOOR PLAN
1/8" = 1'-0"
NORTH

JP-05C
Contact Sample
Rare-Cladosporium
Rare-Stachybotrys
High-Aspergillus

JP-03
Air-O-Cell Sample
Overloaded With Background Debris

JP-02
Air-O-Cell Sample
Overloaded With Background Debris

JP 06C
Contact Sample
High-Stachybotrys
High-Aspergillus

APPENDIX D

EMTEC CERTIFICATIONS

INDOOR AIR QUALITY ASSOCIATION

Membership Certificate

THIS DOCUMENT IS TO CERTIFY THAT

EMTEC

Membership ID #: 18282

IS A MEMBER IN GOOD STANDING AND ENTITLED TO ALL RIGHTS & PRIVILEGES OF ASSOCIATION MEMBERSHIP

EXPIRES 3/28/2015

ASSOCIATION INC.

Glenn E. Fellman, Executive Director

American Council for Accredited Certification

hereby certifies that

John A. Hatchett

has met all the specific standards and qualifications of the re-certification process, including continued professional development, and is hereby re-certified as a

CIEC

Council-certified Indoor Environmental Consultant

This certificate expires on January 31, 2016.

Charles F. Wiles, Executive Director

1001002

Certificate Number

Certificate of Completion

Indoor Environmental Solutions, Inc.

and

Mycotech Biological, Inc.

We hereby certify that:

John Hatchett

EMTEC

Has attended and successfully completed ***"The Mold Remediation Workshop"*** *detailing the theory and practice of* ***Investigation and Remediation of Fungal Contamination in Buildings***

In Houston, TX U.S.A. March 28, 29, 30, 2001

Byron Ware
ASCS, CMH

Larry Robertson
MS, CIAQP, CIE

Stephen Linkous
RN, CHCM

Environmental Assessment Association

EAA

hereby certifies that

John A. Hachett

has been qualified for membership in the

Environmental Assessment Association

and has been admitted by its Board of Directors and declared to be a

Certified Mold Inspector

and is hereby granted this certificate
under the conditions presented in its by-laws.

Signed and presented this 22nd day of November, 2005